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ABSTRACT

A method for applying wear reducing material to a tool joint useful in a wellbore in drilling operations, the method, in at least certain aspects, including positioning the tool joint adjacent laser beam apparatus, delivering wear-reducing material to a location on the tool joint to which the wear-reducing material is to be applied, heating the wear-reducing material with the laser beam apparatus to a temperature not exceeding its melting temperature so that the wear-reducing material is welded to the tool joint; in one particular aspect, using a defocused laser beam to achieve desired heating temperatures; and, in one aspect, defocusing the laser so no plasma is formed.